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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,612	02/12/2004	Donald J. Curry	118664	3946
27074	7590	09/26/2007		
OLIFF & BERRIDGE, PLC. P.O. BOX 19928 ALEXANDRIA, VA 22320				
			EXAMINER TYLER, NATHAN K	
			ART UNIT 2625	PAPER NUMBER
			NOTIFICATION DATE 09/26/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/776,612

Applicant(s)

CURRY ET AL.

Examiner

Nathan K. Tyler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-11 and 13-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-11 and 14-17 is/are rejected.
- 7) ☒ Claim(s) 6 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 30082007.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see paragraph I, filed 14 June 2007, with respect to the specification have been fully considered and are persuasive. The objection to the specification has been withdrawn.

2. Applicant's arguments, see paragraph II, with respect to claim 17 have been fully considered and are persuasive. The rejection of claim 17 under 35 U.S.C. 101 has been withdrawn.

3. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4, 8-11, 15, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Schweid (US 6734991 B1).

Regarding **claims 1 and 8**, Schweid discloses a single channel method and corresponding apparatus (Fig. 1, Fig. 2 do not show working with more than one channel) for estimating a halftone screen frequency (frequency estimate for an image, column 3, lines 50-55) from image data (an image, column 3, line 52), comprising: multiplying a frequency measurement signal (the first fH of fH times fH in the equation of column 6, line 66) by a factor (the second fH of fH times fH in the equation of column 6, line 66); adding the multiplied frequency measurement signal to an image data signal to produce an output signal (f_v times f_v , of the equation of column 6, line 66); and adjusting the factor multiplied (the value of the second fH change, column 6, lines 50-55) to the frequency measurement signal based on a control signal (the signal that controls which value of fH is to be used, note all processors are controlled by signals), wherein the control signal is based on a characteristic of the image data (the image signal that makes one of the conditions come true, column 6, lines 50-55), and interpolating the output signal to produce the halftone screen frequency estimate (the square root of the output signal of one pixel is inserted/added with other frequency estimate to form the frequency estimate for the image of column 3, line 52).

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Note: BIU of Fig. 1 of applicant's specification is an interpolation unit that shows a form of interpolation that includes an arithmetic operation such as multiplication and summation of data. The examiner is interpreting the process of adding the square root of the output signal of one pixel with the other frequency estimate to form the frequency estimate for the image as a process of interpolation.

Regarding **claims 2 and 9**, Schweid discloses measuring a contrast within a window of the image data to produce the control signal (Fig. 1 shows finding a max and a min to find fH , contrast is used at column 5 line 38 " $fHx-fHn$ ").

Regarding **claim 4 and 11**, Schweid discloses sub-sampling the image data to produce the image data signal (column 4, lines 4-15 explains that the image is scanned producing pixels in the "fast scan" and "slow scan" dimensions. Because a scanner is only capable of a limited scanning resolution, the image data will necessarily be sub-sampled).

Regarding **claim 3 and 10**, Schweid discloses filtering the image data using a low-pass filter to produce the image data signal (because the image data is sub-sampled as shown above, high frequency content will be lost above the cutoff frequency for the sampling rate of the scanner. Therefore the image data has been low-pass filtered).

Regarding **claim 15**, "means for" will be interpreted for examination purposes as being implemented using hardware or a hardware/software combination. Schweid discloses a single channel apparatus for estimating a halftone screen frequency, comprising: means for combining a multiplied frequency measurement signal with an image data signal to produce an output

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signal; means for adjusting a factor multiplied to the frequency measurement signal; and means for interpolating the halftone screen frequency (see grounds for rejection for claim 1).

Regarding **claim 16**, "means for" will be interpreted for examination purposes as being implemented using hardware or a hardware/software combination. Schweid discloses means for measuring contrast a contrast of the image data (see grounds for rejection for claim 2); means producing for producing the image data signal; and means for generating the frequency measurement signal (see grounds for rejection for claim 1).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Schweid and Seidner (US 5333064 A).

Regarding **claims 7 and 14**, Schweid does not disclose outputting the output signal, which is an estimate of the halftone screen frequency, to a de-screening device.

Seidner teaches evaluating screen parameters including halftone screen frequency, then outputting the screen parameters to a de-screening section (see Fig. 7).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to output the screen frequency estimate taught by Schweid to the de-screening system taught by Seidner, so that the screen frequency estimate could ultimately be used to remove the halftone screen, eliminating the possibility of a moire effect when the image is reproduced ("It is common to desire to reproduce the half-tone master on a reproduction system other than that used to produce it... Since the screen used for the second printing method is typically different from the original screen, a Moire effect will arise if the original screen is not removed. The process of removing the original screen before rescreening is known as descreening, or half-tone (HT) to continuous tone (CT) conversion, various elements of which are known in the art." At Seidner column 1, line 16).

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schweid.

Regarding **claim 17**, although Schweid does not explicitly disclose a tangible computer-readable medium that stores computer-executable instruction which, when executed by a computer, causes the computer to perform the method of claim 1, It would have been obvious at the time the invention was made to one of ordinary skill in the art to use a computer to perform the frequency estimation method taught by Schweid, as computer implementation of image processing algorithms is well known in the art to be simple and inexpensive.

Allowable Subject Matter

9. Claims 6 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

Claims 6 and 13 are directed to a method and corresponding apparatus for halftone frequency estimation. Claim 15 identifies the uniquely distinct features of subtracting a frequency signal from the image data signal to produce the frequency measurement signal. The closest prior art Schweid (US 6734991 B1) teaches all the limitations of claims 1 and 8, from which claims 6 and 13 depend respectively; either singularly or in combination with other cited references fails to anticipate or render the above underlined limitations obvious.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

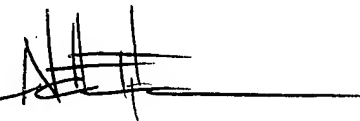

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan K. Tyler whose telephone number is 571-270-1584. The examiner can normally be reached on M-F 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



KING Y. POON
SUPERVISORY PATENT EXAMINER

Nathan K Tyler
Examiner
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